Courses in English
Course Description

Department	03 Mechanical, Automotive and Aeronautical Engineering
Course title	**Fatigue and Fracture**
Hours per week (SWS)	4
Number of ECTS credits	6
Course objective	After successful completion of this module, the student will be conversant in the theory of fatigue analysis due to the effects of cyclic loading. The proper application of learned methods with respect to fatigue and fracture analysis will be expected.
Prerequisites	Engineering Math, Statics, Strength of Materials
Recommended reading	
Teaching methods	
Assessment methods	Exam
Language of instruction	English
Name of lecturer	Prof. Dr. -Ing. K. Rother
Email	klemens.rother@hm.edu
Link	
Course content	1. Introduction Static and fatigue damage, damage mechanisms, elastic and elastic-plastic stress/strain behavior 2. S-N-curves (Wöhler Diagram, Gassner Diagram)Stress Cycle, SN-curve (Wöhler Diagram), scatter of experimental data, test evaluation, linear damage accumulation, probability of failure 3. Loads and StressesCycle counting, load spectra for elastic and elastic-plastic conditions 4. Factors Affecting Fatigue BehaviorEffects due to loading, notches, material, size, technology, surface, temperature, corrosion, sequence effect 5. Stress Based ConceptAnalysis scheme, synthetic “Wöhler Diagrams”, nominal-, structural-, notch stress concept
Remarks	